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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/594,393	06/15/2000	Georg-Erwin Arndt	P00.0954	1384

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Patent Department
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EXAMINER

FAULK, DEVONA E

ART UNIT	PAPER NUMBER
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2644

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DATE MAILED: 03/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/594,393

Applicant(s)

ARNDT ET AL.

Examiner

Devona E. Faulk

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/5/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 6 is/are rejected.
- 7) ☒ Claim(s) 2-5, 7-10 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 1/5/04 have been fully considered but they are not persuasive.
2. In regards to the Sigwanz et al. reference the applicant argues, on page 7, that there is no check that is undertaken to determine whether the directional characteristics that has been set is really the desired directional characteristic, as occurs in an actually worn hearing aid device, and taking into account other factors such as component tolerances. The applicant's claim does not specifically state that a check is undertaken as claimed. Besides, the Sigwanz reference, in column 2, lines 39-44, state that the directional characteristics can be compared and processed by the addition of further parameters, like comparison to stored patterns of directional microphone characteristics, in order to select the directional characteristic to be ultimately set.
3. In regards to the Ishige et al. reference, the applicant argues, on page 8, that the external unit disclosed in Ishige does not determine the actual directional characteristic of a hearing aid device being worn on the head of a user. The purpose of the Ishige reference was to show a hearing aid device with an external unit. The Sigwanz reference does set and modify directional characteristics. The applicant's claim that the processing is done in an external unit as opposed to internally to the hearing aid, like in the Sigwanz reference, is not a patentable novelty.
4. In regards to the Sasada reference, the applicant argues, on page 8, that there is not teaching or suggestion in this reference that the filter parameters that are adaptively adjusted in the Sasada reference have anything to do with setting the directional characteristic of a microphone arrangement of a hearing aid. Upon further examination the examiner has

Art Unit: 2644

determined that the Sasada reference was not needed because the primary reference, Sigwanz, reads on the supplying filter parameters as claimed (See Figure). The signal-processing unit (9) feeds data back to the delay (3), which in turn feeds data to the interpolation filters. The examiner failed to point this out in the previous action.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claim 1** is rejected under 35 U.S.C. 103(a) as being unpatentable over Sigwanz et al. (U.S. Patent 6,539,096) in view of Ishige et al. (U.S. Patent 5,835,610).

7. Regarding **claim 1**, Sigwanz discloses a method for producing a variable directional microphone characteristic and digital hearing aid operating according to the method comprising microphones (1a and 1b) and interpolation filters (4a, 4b and 4c) which reads on “a plurality of microphones with filters respectively connected downstream therefrom, said filters being parameterizable”; a signal processing unit (8) which reads on “signal processing stage”; and an earphone, which reads on “earphone”. The interpolation filters preferably operate as a low-pass filter but can be any type filter. An interpolation filter is used to compute outputs at times in between the sample points. It is well known in the art that the user wears the hearing aid, and that hearing aids have microphones to receive acoustic signals and convert that acoustic signal to an electrical signal. Sigwanz, reads on the supplying filter parameters as claimed (See Figure). The

Art Unit: 2644

signal-processing unit (9) feeds data back to the delay (3), which in turn feeds data to the interpolation filters. Sigwanz, in column 2, lines 39-44, also teaches that the directional characteristics can be compared and processed by the addition of further parameters, like comparison to stored patterns of directional microphone characteristics, in order to select the directional characteristic to be ultimately set. Although Sigwanz teaches on the above elements, he fails to teach of a measuring and evaluation unit external to the hearing aid and supplying electric signals to the external measuring and evaluation unit. However, the concept of an external measuring and evaluation unit or controller was well known in the art at the time of filing as taught by Ishige. Ishige discloses a hearing aid device with an external device (3), the external device comprising a controller and a hearing aid processor, which reads on "a measuring and evaluation unit external to said hearing aid". The Sigwanz reference does set and modify directional characteristics. The applicant's claim that the processing is done in an external unit as opposed to internally to the hearing aid, like in the Sigwanz reference, is not a patentable distinction. It would have been obvious to combine Sigwanz's hearing aid and Ishige's external apparatus for the benefit of a hearing aid device that would allow the user to better optimize the device to his or her personal parameters.

8. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Sigwanz et al. (U.S. Patent 6,539,096) in view of Ishige et al. (U.S. Patent 5,835,610).

9. Regarding **claim 6**, Sigwanz discloses a method for producing a variable directional microphone characteristic and digital hearing aid operating according to the method comprising microphones (1a and 1b) and interpolation filters (4a, 4b and 4c) which reads on "a plurality of microphones with filters respectively connected downstream therefrom, said filters being

Art Unit: 2644

parameterizable”; a signal processing unit (8) which reads on “a signal processor”; and an earphone, which reads on “earphone”. The interpolation filters preferably operate as a low-pass filter but can be any type filter. An interpolation filter is used to compute outputs at times in between the sample points. It is well known in the art that the user wears the hearing aid, and that hearing aids have microphones to receive acoustic signals and convert that acoustic signal to an electrical signal. Sigwanz, reads on the supplying filter parameters as claimed (See Figure). The signal-processing unit (9) feeds data back to the delay (3), which in turn feeds data to the interpolation filters. Sigwanz, in column 2, lines 39-44, also teaches that the directional characteristics can be compared and processed by the addition of further parameters, like comparison to stored patterns of directional microphone characteristics, in order to select the directional characteristic to be ultimately set. Although Sigwanz teaches on the above elements, he fails to teach of a measuring and evaluation unit external to the hearing aid and supplying electric signals to the external measuring and evaluation unit. However, the concept of an external measuring and evaluation unit or controller was well known in the art at the time of filing as taught by Ishige. Ishige discloses a hearing aid device with an external device (3), the external device comprising a controller and a hearing aid processor, which reads on “a measuring and evaluation unit external to said hearing aid”. The Sigwanz reference does set and modify directional characteristics. The applicant’s claim that the processing is done is an external unit as opposed to internally to the hearing aid, like in the Sigwanz reference, is not a patentable distinction. It would have been obvious to combine Sigwanz’s hearing aid and Ishige’s external apparatus for the benefit of a hearing aid device that would allow the user to better optimize the device to his or her personal parameters. Sigwanz’s hearing aid is a directional one and so it is

Art Unit: 2644

obvious that one would set the amplitude and phase response to optimize the directional characteristic. It would have been obvious to combine Sigwanz's hearing aid and Ishige's external apparatus and Sasada's controller for the benefit of a hearing aid device that can be optimized for better functionality.

Claim Objections

10. **Claims 2-5, and 7-10** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Art Unit: 2644

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devona E. Faulk whose telephone number is 703-305-4359. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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PRIMARY EXAMINER